

## **REMARKS/ARGUMENTS**

### **A. Amendment to the Claims**

Claims 1-3, 45, 48, 50, 51, 53, 54, 60-62, 64, and 77-83 are in the application. Claims 1, 50, 60, 77, 78, 81 and 83 are amended. Claim 61 is canceled. New claim 84 is submitted. Claims 1-3, 45, 48, 50, 51, 53, 54, 60, 62, 64, and 77-84 are under examination

Claim 1 and claim 60 are amended to change the “one separate change tool” to “a separate change tool”, and by rewording to provide that the upper edge of the change tool raises all of the plurality of change balls when disposed in the respective retainer cavities.

Claim 50 is amended by rewording to provide that the programming key has a contour edge configured to raise all of the change balls, when disposed in the associated tumbler chambers, above the shear line.

Claim 77 is amended by rewording to provide that the upper edge of the inserted change tool raises at least the centerline of all of the plurality of change balls, when disposed in the respective retainer cavities, above the shear line.

Claim 78 is amended by rewording to provide that the linear upper edge of the inserted change tool raises at least the centerline of all of the plurality of change balls, when disposed in the respective retainer cavities, above the shear line.

Claim 81 is amended to change the “one separate change tool” to “a separate change tool”.

Claim 83 is amended by rewording to provide that the upper edge of the inserted change tool raises at least the centerline of all of the plurality of change balls, when disposed in the respective retainer cavities, above the shear line.

New claim 84 provides that the separate change tool is a single separate change tool. Support is from current claim 1. Applicant acknowledges that the claim 78 when previously amended should have been designated “currently amended”, and understands, with thanks, that the Examiner clearly understood it as such and has entered that amendment.

Applicant believes that no new matter has been added by way of the amendments to the claims, and that no additional claim fees are due.

**B. Objections to the Claims**

The objections to claims 1 and 60 are rendered moot by the amendments made thereto, which make it clear that each of the plurality of change balls is associated with one pin chamber, and that the upper edge of the change tool raises all of the plurality of change balls when disposed in the respective retainer cavities. The claim clearly shows that each change ball has a first position within the pin chamber, and a second position within the retainer cavity, and that when the change ball is disposed in the retainer cavity, the upper edge of the change tool can raise it, and all other change balls similarly disposed.

The objection to claim 50 is rendered moot by the amendments made thereto. The claim makes it clear that each tumbler chamber aligns with a driver chamber to form a pin chamber, and that each change ball has a first position within the pin chamber, such that a programming key raises each change ball when disposed in the associated tumbler chamber, and all of the change balls similarly positioned, above the shear line upon insertion of the programming key into the keyway.

The objections to claims 77, 78 and 83 are rendered moot by the amendments made thereto, which make it clear that each of the plurality of change balls is associated with one pin chamber, and that the inserted change tool raises at least the centerline of all of the plurality of change balls when disposed in the respective retainer cavities.

**C. Rejection of Claims 1-3, 45, 48, 50, 51, 60, 62, 64, and 77-83 under 35 USC 103(a) over Monahan (4,386,002) in view of EP 0918124.**

The Examiner statement of rejection and rationale are incorporated herein by reference.

**1. Ascertaining the Scope of the Prior Art**

Every proper determination of obviousness requires a proper determination of the Scope and Content of the Prior Art by the Examiner. Applicant believes that the Examiner incorrectly characterized the teaching of the prior art.

**a. The Examiner finds that EP(124) reference provides an additional teaching that a ball in place of a disk prevents jamming between the disk and in the blind hole and the shear line.**

Applicant traverses this finding of the Examiner. There is no teaching, suggestion or motivation of the jamming of master pins or such disks in a lock mentioned in either

Monahan or EP(124). A review of the prosecution history of this application shows that the Examiner has only once identified any prior art reference that mentions jamming. In Applicant's response dated Sept 28, 2007, Applicant noted (page 17) that neither Monahan nor EP(124) make any disclosure or suggestion of the jamming of disks in or at the retainer cavity (blind hole) or shear line. In the Examiner's Action dated Dec 11, 2007, the Examiner states at page 6 that "it is a well known principle of the lock art that using a ball at the shear line location prevents jamming of the lock", citing US Patent 3,183,692, issued to Check (column 3 lines 53-63). Presumably, the Examiner is relying upon this same "well known principle" in the present Action.

Check shows that each time the construction key C is used, the lower portion of the ball 18 will cross the shear line, so that the ball will be forced out of the tumbler chamber and into the driver chamber. When the construction key C is withdrawn, the ball crosses back across the shear line and into the tumbler chamber. With the use of a shut-out key S, the ball is retained within the tumbler chamber, so that when the plug is rotated, the ball falls by gravity down into the hole 19 in the housing. The new owner key O now operates the lock, with the ball isolated in the hole 19. It would be recognized by a person of ordinary skill in the art, that the alleged "preferred arrangement" of a ball 18 in Check is the only operable shape, and that a similarly sized disk would be inoperable. As clearly shown in Check's Figures 2 and 3, if the ball is replaced with a similarly sized disk that spans across the shear line, the plug will not turn in the lock with the construction key C. For the construction key C to operate, the tumbler 114 would have to be sized to be raised by the construction key C right up to the shear line, in order to lift the substituted disk 18 up into the drive chamber. However, in that situation, the owners key O and the construction key C would be identically bitted and both operable at all times, which is contrary to basic function of the invention of Check.

Check therefore uses a ball solely to allow a construction key C to operate the lock. The construction key C itself cannot raise the tumbler 114 up to the shear line, and replacement of the ball with a disc pin of the same size would cause the lock to jam. The lock of Check works only because a ball is used, and a ball and a disk in Check would not be either equivalents or interchangeable.

Applicant emphasizes that Check has not been cited as prior art in the present application.

b. The set blades of Monahan

The Examiner considers that Monahan suggests moving plural master pins by the set blade, and that it would have been an obvious design choice to use or configure a single set blade to move all of the master pins from the retainer cavities. Applicant traverses this finding of the Examiner.

Applicant herein presents a Declaration under 37 CFR 1.132 by inventor Rod Herdman, that analyzes the use of set blades in the Monahan reference from the point of view of one skilled in the art.

The Declarant describes that Monahan teaches that a programming member identified as a set blade 53 is positioned in the slot to control the positioning of master pins relative to the shear line (see Monahan at col 2 lines 63-66). As Fig. 6 illustrates, the set blade 53 supports and positions most of the master pins 47 within the respective blind holes 50. Monahan's CHART 1 (for a single blade lock) and CHART 3 (for a dual blade lock) show that the set blade positions are predominantly configured with a "0" contour, which provides a two-deep or one-deep gap in the blade that retains one or more master pin within the respective blind hole.

The Declarant also explains that whenever a master pin 47 is disposed or trapped within a blind hole 50 below the shear line, with the plug in the key-insertion position shown in Fig. 9 and 10, the master pins are fixed in position, and cannot move radially out of the blind hole or axially along the length of the plug. Moreover, as long as the set blade 53 has a raised contour portion disposed axially rearward from one of the trapped master pins, then the set blade cannot be withdrawn from the slot while the plug is in an operating position (except for the programming position of Fig. 1), including the key-insertion position of Figure 5. Figure 6 shows that the bevel 70 provided on the leading end 69 is blocked by the master pins 47 in the F blind hole, so that set blade SB1 could not be withdrawn from the slot 55 when the plug was in an operating position. Figure 7 shows that the bevel 70 is blocked by the remaining one master pin 47 in the F blind hole, and the raised #2 contour of the set blade at position F is blocked by the master pins 47 in the E blind hole, so that set blade SB6 cannot be withdrawn from the slot 55 when the plug was in an operating position.

## 2. Rationales to Support Rejections under 35 U.S.C. 103

The key to supporting any rejection under 35 U.S.C. 103 is the clear articulation of the reason(s) why the claimed invention would have been obvious. The Supreme Court in *KSR* noted that the analysis supporting a rejection under 35 U.S.C. 103 should be made explicit. The Court quoting *In re Kahn*, 441 F.3d 977, 988, 78 USPQ2d 1329, 1336 (Fed. Cir. 2006), stated that "[R]ejections on obviousness cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness." *KSR*, 550 U.S. at \_\_\_, 82 USPQ2d at 1396. Exemplary rationales that may support a conclusion of obviousness include:

- (A) Combining prior art elements according to known methods to yield predictable results;
- (B) Simple substitution of one known element for another to obtain predictable results;
- (C) Use of known technique to improve similar devices (methods, or products) in the same way;
- (D) Applying a known technique to a known device (method, or product) ready for improvement to yield predictable results;
- (E) "Obvious to try" - choosing from a finite number of identified, predictable solutions, with a reasonable expectation of success;
- (F) Known work in one field of endeavor may prompt variations of it for use in either the same field or a different one based on design incentives or other market forces if the variations are predictable to one of ordinary skill in the art;
- (G) Some teaching, suggestion, or motivation in the prior art that would have led one of ordinary skill to modify the prior art reference or to combine prior art reference teachings to arrive at the claimed invention.

The Examiner has not specifically mentioned the aspects of any of Rationales (A) through (F). Applicant should not be expected to guess which rationale is being applied in the Action, or to respond to any or all other rationales either hypothetically or in the alternative (the Supreme Court in *KSR* noting that the analysis supporting a rejection under 35 U.S.C. 103 should be made explicit. (emphasis added))

Since the Action mentions expressly "motivation" and "combination", then Applicant will assume that the rejection is based on the rationale of some teaching, suggestion or motivation in the prior art (Rationale G).

### 3. Rationale G, the TMS rationale

The TMS rationale requires Office personnel to articulate the following:

(1) a finding that there was some teaching, suggestion, or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings;

(2) a finding that there was reasonable expectation of success; and

(3) whatever additional findings based on the *Graham* factual inquiries may be necessary, in view of the facts of the case under consideration, to explain a conclusion of obviousness.

According to MPEP 2144, the rationale to support a conclusion that the claim would have been obvious is that "a person of ordinary skill in the art would have been motivated to combine the prior art to achieve the claimed invention and that there would have been a reasonable expectation of success." *DyStar Textilfarben GmbH & Co. Deutschland KG v. C.H. Patrick Co.*, 464 F.3d 1356, 1360, 80 USPQ2d 1641, 1645 (Fed. Cir. 2006). If any of these findings cannot be made, then this rationale cannot be used to support a conclusion that the claim would have been obvious to one of ordinary skill in the art.

### 4. Traversing of the rejection

#### **A) a single set blade to move all of the master pins from the retainer cavities is an obvious design choice**

Applicant traverses.

Picking up where we left off in Mr. Herdman's Declaration, the Declarant goes on to explain the clear error of the Examiner's assumption that a set blade configured in accordance with one claimed by Applicant is "an obvious design choice" of Monahan. The Examiner has stated that a hypothetical set blade ("hypothetical" because it is not expressly disclosed or suggested in Monahan) that does not trap any of the master pins, such as by having a linear edge having #4 contours along positions A-F, is "an obvious design choice". Such a hypothetical set blade would have no #0 or #2 contours along its length that could retain a master pin or pins. The corresponding hypothetical user key associated with such hypothetical set blade would be understood to have all lower contours that would retain all of the master pins within the plug holes 41 at each position A-F during operation (as shown in Position A for First Change Key C1 in Figure 9).

The Declarant then explains that such a hypothetical set blade would not have or support any trapped master pins within a blind hole, and therefore would not have any raised contour portion disposed axially rearward from a trapped master pin, and therefore would have no means for being retained within the slot when the lock is rotated to an operating position including the key insertion position. The Declarant rightly concludes that the hypothetical set blade would be pulled with relative ease from the slot of Monahan at any time, and perhaps lost or thrown away. Therefore, unlike every other set blade configuration contemplated by Monahan, the hypothetical set blade is removable from the slot while the plug is in the key insertion position, with disastrous consequences. Without the hypothetical set blade disposed within the slot, and with all of master pins disposed within the plug holes 41 upon use of the corresponding hypothetical user key, each of the driver pins 44 positioned above a blind hole would fall down into the blind holes when the lock is rotated to the programming position (as in Fig. 6), thereby irretrievably jamming the lock. The driver pins could then only be removed from the blind holes by disassembling the lock, by removing plug from the housing cylinder.

The hypothetical set blade, which the Examiner considers “an obvious design choice”, may be the one set blade that would not work properly, and rather would predictably fail, in the lock of Monahan. As concluded by the Declarant, the hypothetical set blade according to Examiner would permit the set blade to be withdrawn from the slot under normal lock operation, unlike every other set blade configuration contemplated by Monahan, which would result in the lock becoming irretrievably jammed by driver pins falling down into the blind holes during operation of the lock.

Consequently, the hypothetical set blade considered by the Examiner as an obvious design choice, would fail in its intended function in the lock of Monahan; it would clearly not be an obvious design choice. And, therefore, Monahan clearly teaches away from the Applicants present invention.

#### **B) use of a ball instead of a disk-shaped master pin**

The rejection states that “it would have been obvious to substitute a ball in place of, or in addition to, the plural change member (master pin) discs 47 of Monahan, in view of the teaching of the EP(124) reference, the motivation being to prevent jamming between the topmost disc 47 in the retainer cavity and the shear line in the figures 13 and 14 position of Monahan.”

Applicant traverses.

(1) lack of some teaching, suggestion or motivation:

The rejection identifies only the Monahan and EP(124) references. The EP(124) reference shows balls as small pins, but makes no teaching or suggestion that the ball prevents jamming *per se*. In particular, EP(124) makes no suggestion concerning jamming between the ball pin 5, lying in the blind hole, and the shear line, which would appear to be the corresponding features to “the topmost disc 47 in the retainer cavity”.

The Federal Circuit in the above-mentioned *DyStar Textilfarben* case stated that “the suggestion test ... by no means requires an explicit teaching to combine to be found in a particular prior art reference... (W)e (have) stated explicitly that evidence of a motivation to combine need not be found in the prior art references themselves, but rather may be found in “the knowledge of one of ordinary skill in the art, or, in some cases, from the nature of the problem to be solved.” (emphasis in the original, quoting from *Dembiczak*, 175 F.3d at 1000). Indeed, the Examiner has previously stated in the Action dated February 11, 2008, that “the Monahan and EP(124) reference need not suggest that their discs may cause jamming of their lock. It is inherent that the use of discs may cause jamming of a lock, just as it is inherent that the use of a ball at the shear line, by virtue of its rounded surface, would aid in preventing the jamming of a pin tumbler.”

However, the “inherency” of a disc to jam a lock is not certain. Applicant take notice that most locks use barrel shaped driver pins, and have used disc-shaped master pins for decades. The use of master pins *per se* is ubiquitous in many commercial cylinder locks that use master keying, and therefore cannot “inherently” be considered to cause jamming.

Likewise, the use of a ball instead of a disc as a master pin cannot inherently be considered to prevent the jamming of a lock. The same “biasing” function that Check relies upon to force the ball into the driver chamber can easily result in the unintentional movement of a ball out of the tumbler by an unauthorized key (often referred to as “incidental keying”). This can result in breach of the lock security (access by an unauthorized key) and possible malfunctioning of the lock itself (see Applicant’s description about “incidental keying” at paragraph 0172).

The only evidence of record concerning jamming presented by the Examiner pertaining to the knowledge of one of ordinary skill in the art, appears to be US Patent 3,183,692, issued to Check, which was mentioned in the Examiner’s Action dated Dec 11, 2007, wherein the Examiner stated “it is a well known principle of the lock art that using a ball at the shear line location prevents jamming of the lock”, referring to Check at column 3 lines 53-63).

As explained at page 13 of this Response, Check uses a ball solely to allow a construction key C to operate the lock. The construction key C itself cannot raise the tumbler 114 up to the shear



line, and replacement of the ball of Check with a disc pin of the same size would cause the lock to jam. The lock of Check works only because a ball is used, and a ball and a disk in Check would not be either equivalents or interchangeable. Furthermore, the ball pin of the lock typically resides in the tumbler chamber, and passes across the shear line each time the construction key C is used. Contrary to the Examiner's analysis, the ball is not used to "prevent jamming" of the ball within a blind hole at the shear line, but rather to utilize the biasing properties of the ball so that the ball can be moved out of the tumbler chamber even though the lower portion of the ball remains therewithin. This property and functionality of the ball of Check is not useful in Monahan. Monahan does not use the user key and the rotation of the plug to move the master pins out of the tumbler chamber, as does Check. And Monahan uses a set blade to move master pins out of the blind holes, a function that neither Check nor EP(124) provide.

(2) no reasonable expectation of success

The present rejection fails to make any finding of a reasonable expectation of success with respect to the substitution of balls for the master disk pins of Monahan, and therefore *prima facie* fails the TMS requirements.

Nevertheless, the Examiner has previously made one alleged finding on the record regarding expectation of success, in the Action dated Febr, 11, 2008, at page 6. There, the Examiner stated "The fact that the EP (124) reference suggests that a ball or pin/disc is useable provides that there is a reasonable expectation of success in a lock such as that of Monahan." (emphasis in the original).

The Examiner has not made a finding of fact. The Examiner merely recites that the EP(124) reference suggests that both the ball and the disk are useable in the EP(124) reference. If that were the criteria for a "finding of reasonable expectation of success", then any mention of a feature in any one of the recited references would satisfy the finding requirement. Instead, the finding of reasonable expectation of success is that of the use of the ball of EP(124) (the secondary reference) in the Monahan lock (the primary reference). The Examiner makes no findings whatsoever of any possibility of success, reasonable or otherwise.

To the contrary, the Examiner's action completely ignores arguments that the Applicant has made on the record in previous responses to what was substantially the identical rejection. For example, Applicant response dated September 278, 2007 states at page 18, and which is provided again in this response, that the Examiner has not established that there is a reasonable expectation of success in combining the ball of EP(124) into the lock of Monahan.

Applicant believes that a person of ordinary skill could not predict with certainty the effect on performance of the Monahan lock if the flattened master pins were replaced with round balls. Moreso, the description and figures available in Monahan would lead one of ordinary skill to believe that there are reasonable barriers to successfully replacing the master pins with balls.

First, Applicant believes that the size and shape of the master pins were selected by Monahan to achieve the particular purpose of his lock. Monahan referred to the member 47 only as a “master pin”. In particular, the master pins 47 were sized to substantially the same diameter as the driver chambers and the blind holes, as shown in all of the Monahan figures. A person of ordinary skill would expect that a master pin of substantially the same, though slightly less, diameter as the diameter of the driver chamber, would move into and out of the driver chamber and blind holes with less tilting and jamming.

Second, by way of an example, Applicant calls to the Examiner’s attention the Monahan embodiment of Figs. 1 and 18-19. In order for the plug to rotate in the lock with a ball member in the blind hole (as shown in Fig. 17C), the ball would need to have a diameter no greater than the thickness of the disc 47. From the figures in Monahan, a ball of such a diameter would obviously and easily become improperly positioned within the lock: it could become wedged in between the set rod 58 and the blind hole 50 or the U-shaped slot 59; or it could roll into the corner of the blind hole 50 in a position where it could not be lifted out of the blind hole by the set rod as required. Therefore, as described in Monahan, a change member in the shape of a ball that is substituted for the disc member would reasonably not operate the lock properly. While there may be other changes that could be made to the lock of Monahan to accommodate a ball, a person of ordinary skill could not easily predict with either ease or certainty the effect on performance of the Monahan lock if the disc-shaped master pins were replaced with round balls.

Therefore, Applicant does not believe that the Examiner has established a reasonable expectation of success in combining the ball of EP(124) into the lock of Monahan.

**C) Forming the retainer cavity of Monahan smaller than the driver chamber**

The rejection states that “it would have been obvious to form the retainer cavity of Monahan smaller than the driver chambers for use with the change ball members of Monahan as modified by EP(124), the motivation being to prevent jamming of the lock at the shear line by the drivers and the retainer cavity.

Applicant traverses.

(1) no finding of some teaching, suggestion or motivation:

While Applicant acknowledges that EP(124) shows in the figures that the driver pin b (Figure 15) is larger in size than the recess f in the plug, and can be thus presumed to not fit into and not jam within the recess f, Applicant does not agree that there is a “clear and express teachings” in EP(124) that “the blind hole is smaller in diameter than the driver pin”, or that “the driver pin b cannot jam within the recess f”. Further Applicant does not agree that a person of ordinary skill would have any motivation to use the smaller diameter blind hole of EP(124) in the lock of Monahan. The lock of Monahan simply does not need the smaller blind hole. Monahan provides a plurality of unique set blades, each of which has a contour that, when disposed within the slot, either has a raised contour portion that blocks the driver pin directly from entering the blind hole (as in position A of SB1 in Figure 6), or has a lower contour portion that holds a predetermined number of master pins 47, the topmost master pin then blocking the driver pin from entering the blind hole (as in positions B-F of SB1 in Figure 6). This arrangement remains throughout the operation of the lock, because the set blades of Monahan cannot be removed from the slot when the lock is configured for operation by the corresponding user keys. Consequently, there is no apparent or express need, and thus no motivation, for one of ordinary skill to reduce the size of the blind holes in Monahan.

The case law related to the teaching, suggestion and motivation rationale provides that “[t]he conclusion of obviousness may be made from common knowledge and common sense of a person of ordinary skill in the art without any specific hint or suggestion in a particular reference”, but the Examiner’s utter failure to provide an explanation of the “common knowledge and common sense” beyond a mere “[c]onclusory statements... does not fulfill the agency's obligation” to explain all material facts relating to a motivation to combine. (*In re Lee*, 277 F.3d 1341, 1344). Therefore, the action fails to state a *prima facie* obviousness rejection.

Furthermore, even if there is a determination that there is motivation to reduce the size of the blind hole of Monahan in view of EP(124), which Applicant denies, Monahan nevertheless requires that the plurality of different and unique set blades each have both raised and lowered contours along the positions A-F, or that the set blade remains retained within the slot during the operation of the Monahan lock with the user key, features which fail to meet every feature of Applicant’s claims. Thus, even if such combination is presumed, the action still fails to state a *prima facie* obviousness rejection.

**D. Rejection of Claims 53 and 54 under 35 USC 103(a) over Monahan (4,386,002) in view of EP 0918124, and further in view of additional teachings of Monahan and Smith.**

The Examiner states “Monahan also teaches master shims defined by the topmost wafer 47 as seen in fig. 12. In fig. 94, Smith teaches a shim 583 of a first diameter and a retainer cavity 545 of a second, smaller diameter. It would have been obvious to use a larger diameter shim with a retainer cavity of Monahan, in view of the teaching of Smith, the motivation being to control how many change members may enter a change cavity, in reprogramming a lock.”

Without acquiescing to the characterization of the Monahan, EP’124 and Smith references made in the rejection, Applicant requests reconsideration on the basis of the amendments to claims 1 and 60, and the limitations of new claim 81, and claims depending therefrom.

**Conclusion**

Applicant believes a full and complete response to the Action has been made and that the amendments place all of the claims into condition of allowance

Respectfully submitted,

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